

# An alternative Way to Send and Receive Money in Remittance Companies of Somali

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## Abstract

Electronic money transfer is a regulated payment service performed from an electronic device, which enables users, have access to their money anywhere and at any time without need for a bank account. Real money is converted into electronic money (e-money) and put into electronic devices so that financial transactions such as the transfer of funds from one subscriber to another can be carried-out through an electronic device. The concept of mobile money was established to ensure financial services are made available to the unbanked population. By enabling digital payments, electronic money transfer reduces dependency on cash whilst providing a platform for customers to access a much broader range of financial services. In Somalia most of remittance companies are nearing to collapse because of monopolization of telecommunication companies those made E-money services such as EVC-PLUS of HORMUD Company and E-DAHAB of SOMTEL Companies; the two companies are eliminating the remittance companies those don't have telecommunications; For this reason, the study is about to discover an alternative way to transfer money in order to survive the existence of small remittance companies. In order to success for this study, the researcher has done to an experiment by combining different technologies such as PHP, MySQL and android app; and the experiment gained to send and receive money without need telecommunication service since it full filed Electronic money transfer.

**Keywords:** MMT; P2P; MMU; MNOs; ERD; EFT.

## 1. Introduction

Person-to-person (P2P) payments are evolving to the next generation of electronic payments, the mobile channel.

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Advances in technology have enabled alternative functionalities for mobile handsets beyond the original visions of the designers of handsets or wireless communication architectures to supporting a new and viable channel for mobile financial services, including bill payment and account transfers, domestic and international P2P transfers, proximity payments at the point of sale, and remote payments to purchase goods and services. Mobile-enabled person-to-person payments, or mobile money transfer services (MMT), are experiencing rapid adoption in many markets, in response to steady growth in remittances, the worldwide ubiquity of cell phones, and the need for an electronic P2P payment alternative to paper-based mechanisms like cash and checks. More than a billion people worldwide lack access to traditional financial services, particularly in emerging countries, although they have mobile phones [1].

The growth in mobile telecommunication service availability is expanding the reach of financial services across wireless networks in less developed countries, creating the potential for significant growth in mobile commerce and financial inclusion. Initiatives such as the Mobile Money for the Unbanked (MMU) program, supported in part by the Bill and Melinda Gates Foundation, are contributing to expanded financial inclusion in emerging markets by investing in mobile-enabled financial services and their supporting technologies. This growing ubiquity has the potential to extend even more financial services to unbanked peoples throughout the world, with industry experts projecting that 364 million people will rely upon mobile money by 2012.

The mobile money industry, as measured by the number of deployments around the world has grown rapidly. According to Davidson and Pénicaud (2012:5-6) based on the global survey conducted, at the beginning of 2009, there were 17 mobile money services for the unbanked around the world; as of April 2012, there were 123, with another 93 that were being planned for launch. Based on mobile money transfer, it was found in the same survey that 52 operators who participated in the survey reported having registered a total of 60 million customers as of 30 June 2011.

## **2. Android and its benefits**

Android is mobile operating system based on the Linux kernel and designed for touch screen mobile devices such smart phones and tablets. Android has become the largest installed base of all operating system of any kind. Android has the best-selling operating system on tablets since 2013 and smart phones [2].

The main advantage of adopting Android is that it offers a unified approach to application development.

Developers need only develop for Android, and their applications should be able to run on numerous different devices, as long as the devices are powered using Android. In the world of smartphones, applications are the most important part of the success chain [3].

## **3. Theoretical background**

### ***3.1 Concepts of Electronic money & its importance***

Sending or receiving money for either payment of services, settlement of business transactions, payment of

utility bills, or for family support is common both for businesses and individuals because there will always be a need to transfer money from one user to another. It requires efficient, reliable and affordable money transfer services whereby money can be deposited in one location and withdrawn in another in both urban and rural areas.

Electronic money transfer is a regulated payment service performed from an electronic device which enables users have access to their money anywhere and at any time without need for a bank account. Real money is converted into electronic money (e-money) and put into electronic devices so that financial transactions such as the transfer of funds from one subscriber to another can be carried-out through an electronic device. The concept of mobile money was established to ensure financial services are made available to the unbanked population. By enabling digital payments, electronic money transfer reduces dependency on cash whilst providing a platform for customers to access a much broader range of financial services.

Benefits of using Mobile Money Transfer Systems include reduced administrative cost, increase in efficiency, simplified bookkeeping, and greater security. As use of mobile and gadgets that can access the internet becomes a part of the average Somalia's everyday life it aids and enables the use of money transfer systems over cash transactions. Online payments help to save the customer's time and money. The customer can pay a bill or transfer money over a matter of minutes over the internet instead of spending money on postage or transportation. It also helps to avoid sending cheques through postage and avoiding the risk that the bill may come past the due date. Money Transfer Systems (using the internet as a medium) is the latest step in payment mechanisms [4].

### ***3.2 Evolution of money transfer mechanisms***

Money, which is simply a device, which facilitates trade, represented an improvement over barter in that it reduced transactions costs and thus freed resources for use in the production of other goods and services. Checks came into widespread usage because they offered considerable advantages over cash; they were easily transported in any amount, easily transferred between individuals, involved much less danger of loss or theft than cash, and served as proof of payment. Checks thus reduced the transactions costs involved in making many types of money payments. There are still transactions costs are involved with the processing of these paper documents. The main problem with checks is the indirect nature of the check clearing process. These delays can be costly, especially in cases where large sums of money are involved.

The next step in the evolution of payment mechanisms was wire transfers. Wire transfers involve banks sending electronic messages rather than paper documents To the extent that wire transfers reduce transaction costs and processing time they can be said to improve the efficiency of the payments mechanism. However, the use of wire transfers did not significantly reduced the vast flow of paper through the payments system. Electronic fund transfer is the latest step in both payment mechanisms and money transfer systems.

Electronic funds transfer all started with the use of Automated Teller Machines (ATM). ATM machines can carry out account transfers, account deposits and dispense cash in the mid 1960's. They use a magnetic stripe

card and personal identification number. As the use of ATM machines have grown, the world commenced the Electronic fund transfer age. The next step after this would be Point Of Sales (POS) machines. POS machines are on line systems, which allow customers to transfer funds in order to make purchases. Electronic funds transfer developments are proceeding in several directions, with a number of different systems in various phases of development or use. The common factor in these systems is that they speed the transfer of funds by communicating information relating to payments by electronic means rather than by use of paper instruments as is predominant today. Thus, EFT systems are designed to replace manual processes with electronic data processing and to speed the flow of funds through high-speed data transmission.

### ***3.2.1 mobile money transfer***

E-Money “electronic money,” is stored value held in the accounts of users, agents, and the provider of the mobile money service. Typically, the total value of e-money is mirrored in (a) bank account(s), such that even if the provider of the mobile money service were to fail, users could recover 100% of the value stored in their accounts. That said, bank deposits could earn interest, while e-money cannot. In other hand, mobile money is a service in which the mobile phone is used to access financial services, we can also say that it is movement of value that is made from a mobile wallet, accrues to a mobile wallet, and/or is initiated using a mobile phone.

## ***3. 3 compare between existing systems***

### ***3.3.1 existing system***

EVC Plus is a unique option to transfer and receive mobile money, which is founded by biggest Telecommunication company in Somalia. Now you can share mobile money as well as airtime between your friends and family, as you can send and receive mobile money through this option. You can be best assured about the security of EVC Plus money, as our EVC Plus account is safeguarded by highly secure system having 4-digit secret PIN. This PIN is required to make transactions. Moreover, all mobile phone transactions are encrypted with standard GSM encryption.

- i. Manage welfare/humanitarian activities
- ii. Access your bank account from your mobile
- iii. Manage business activities
- iv. Manage personal tasks
- v. Make bulk payment

### ***3.3.2 proposed system***

This project is called Mobile Money Transfer. It is an informal money transfer system. An informal money transfer system is a remittance system that exists outside of the conventional banking and finance channels. It is a system that is meant to enable registered user to transfer online funds to other users. It has a number of benefits (especially compared to traditional bank transfers). It also has a number of other uses like bill payments and it can also be used for airtime purchasing. One of the major advantages of informal money transfer systems

over a formal money transfer system is that they are still available even when formal systems cannot be functional, like during periods of political instability or even on public holidays.

**Table 1:** Comparison b/w the existing system and this study system

Features	Mobile Money Transfer(this System)	EVC Plus
Uses internet	✓	X
Platform Independence	✓	X
Speed of transaction	✓	X
Users antenna	X	✓
Airtime purchase	✓	✓

### 3.3.3 GAP ANALYSIS

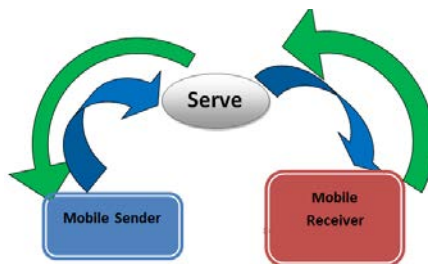
Mobile Money Transfer is a propose system that have a lot-of features illustrated on **Tabale2.1** uses internet, platform independence, and also have speed of transaction. On the other hand EVC Plus is a unique option to transfer and receive mobile money but works network (Antenna).

## 4. Materials and Methods

This study takes up experimental research design. The major purpose of utilizing is an attempt to maintain control over all factors that may affect the result of an experiment, experimental designs produce the strongest, most valid results; it represents the most valid approach to the solution of educational problems, both practice and theoretical, and to the advancement of education as science.

### 4.1 Operational framework

Operational Framework provides relevant, practical and actionable guidance forth project, the framework set out the way the experiment goes on and identifies the software development process. Water fall model is the first process model to be introduced. It calls a linear sequential life cycle model. It's easy to understand and use. In a waterfall model, each phase must be completed fully before the next phase can begin. This type of model is basically used for the project which is small and there are no uncertain requirements. At the end of each phase, a review takes place to determine if the experiment is on the right pat hand whether or not to continue or discard the project. In this model the testing starts only after the development is complete. In waterfall model phases do not overlap. So waterfall model is suitable to my project to choose as software development life cycle model.

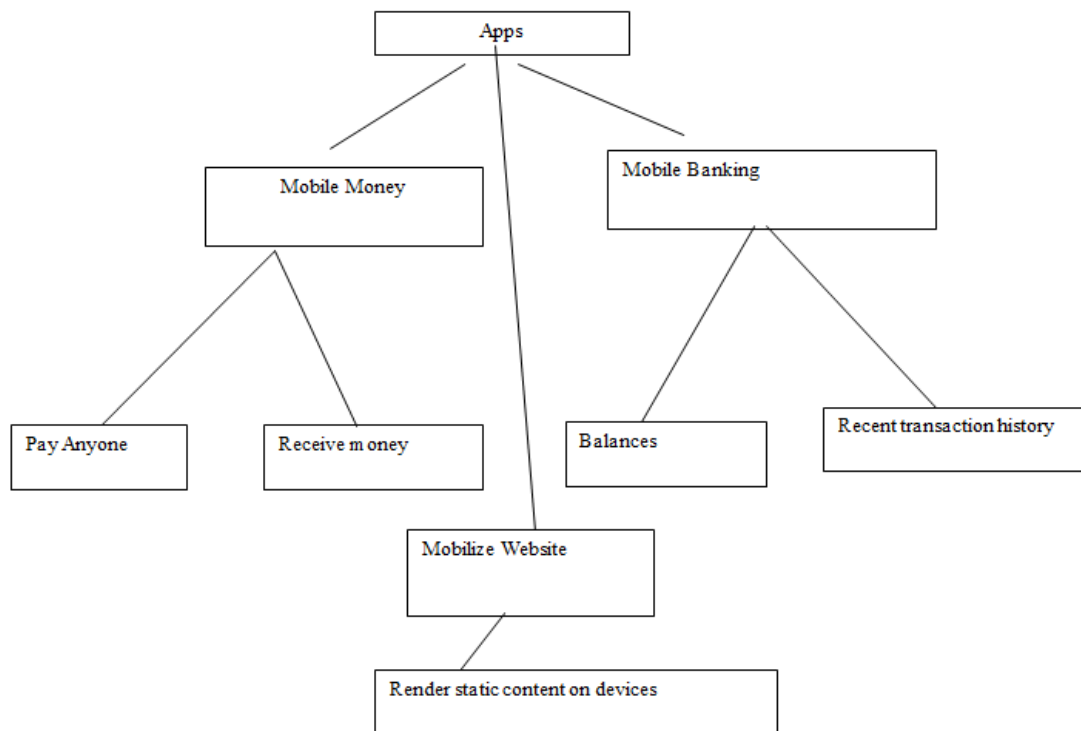


**Figure 1:** Operational Framework

## 5. Experimental implementation scope

### 5.1 Work Break down Structure (WBS)

A Work Breakdown Structure (WBS) is a key experimental deliverable that organizes the team's work into manageable section. The experiment management body of knowledge defines the work breakdown structure as a “deliverable oriented hierarchical decomposition of the work to be executed by the project team. A Work Breakdown Structure is also used for breaking down a project into easily manageable components, or bites [5]. Here the researcher will break down the process for our system, making it easy to use these structures in our project planning.



**Figure 2:** Work breakdown structure for app

### 5.2 System Requirements

This is a comprehensive description of the intended purpose and environment for software under development.

The system requirement specification and definition fully describes what the software will do and how it will be expected to perform. The following are the requirement specification and definition:

- i. The system should allow authentication of users and grant access to authenticated users
- ii. The system should ensure that the portal is available at all times
- iii. The system should allow creation of new users.

### 5.2.1 Software Requirement specification

**Table 2:** Software Requirement

No	Requirement	Description
1	Operating system	windows (any version) / Linux / Mac
2	Front End	Android
3	Back End	PHP and MYSQL.

### 5.3 Process Modeling

Process models are processes of the same nature that are classified together into a model. Thus, a process model is description of a process at a type of level.

A process model is roughly an expectation of what the process will look like. One possible use of a process model is to prescribe how things must/should/could be done in contrast to the process itself, which is really, what happens.

#### 5.3.1 Unified Modeling Languages (UML)

The Unified Modeling Language (UML) allows the modeller to specify, visualize, and construct the artefacts of software systems, as well as business models. It builds upon, unifies the semantics and notations of leading object-oriented methods, and has been adopted as an industry standard. The UML notation is useful for graphically depicting object-oriented analysis and design models. It not only allows you to specify the requirements of a system and capture the design decisions, but it also promotes communication among key persons involved in the development effort. A developer can use an analysis or design model expressed in the ML notation to communicate with domain experts, Users and other stakeholders.

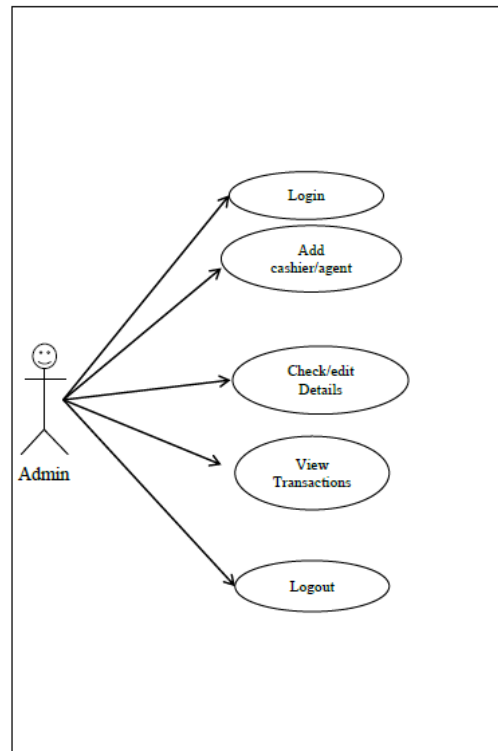
***To represent a complex system effectively, the model developed needs to have a small set of independent views of the systems.***

##### 5.3.1.1 Use Case Analysis

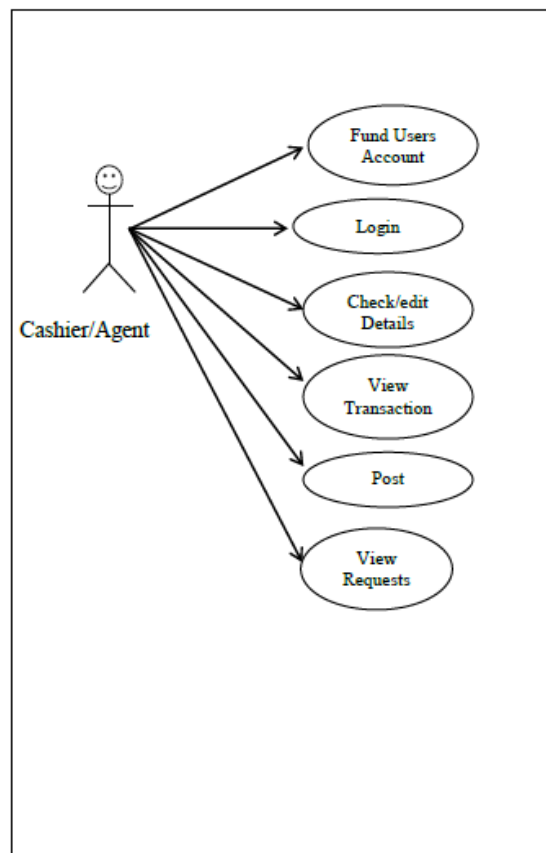
A use-case model consists of actors and use cases. An actor is an external entity that interacts with the system (similar to an external entity in data-flow diagramming).

It is someone or something that exchanges information with the system. A use case represents a sequence of related actions initiated by an actor; it is a specific way of using the system.

An actor represents a role that a user can play. The actor's name should indicate that role. Actors help you to identify the use cases they carry out.

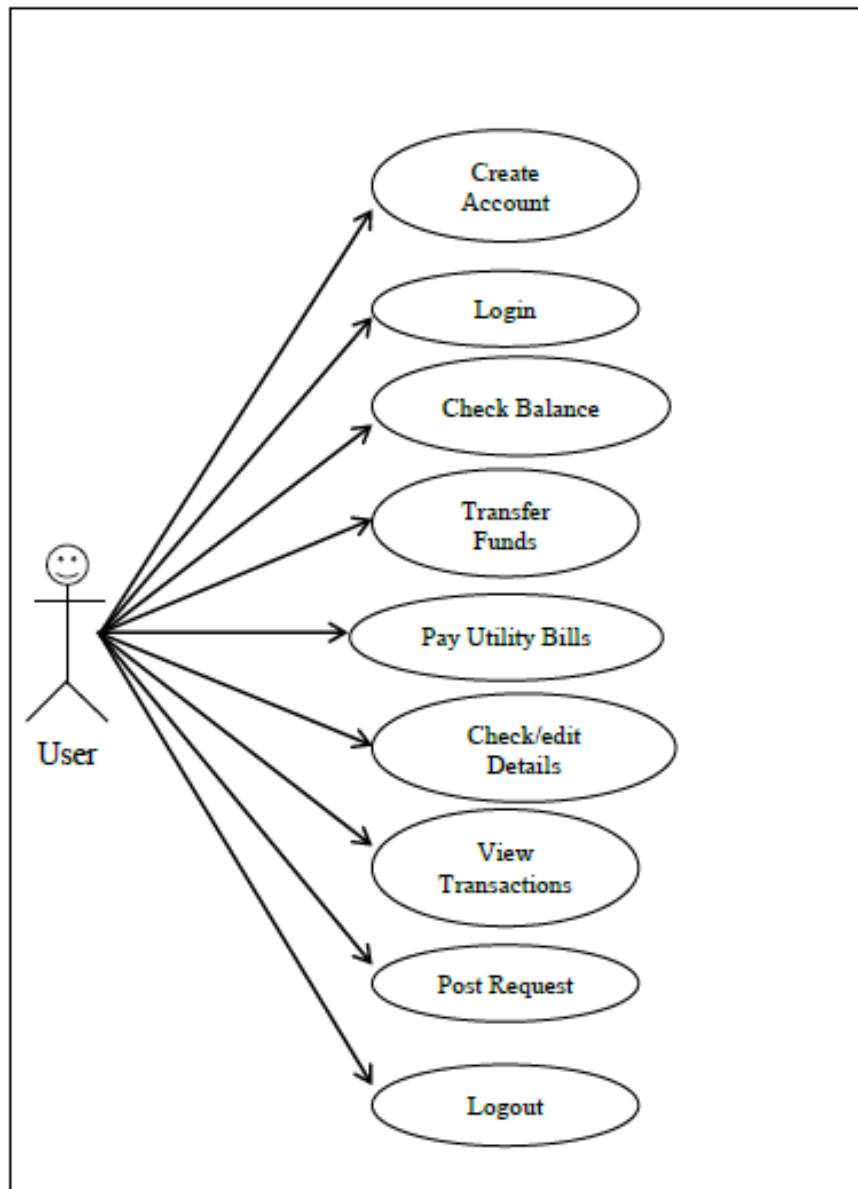


**Figure 3:** Admin's Use case diagram.



**Figure 4:** Agent Use case





**Figure 5:** User's Use case

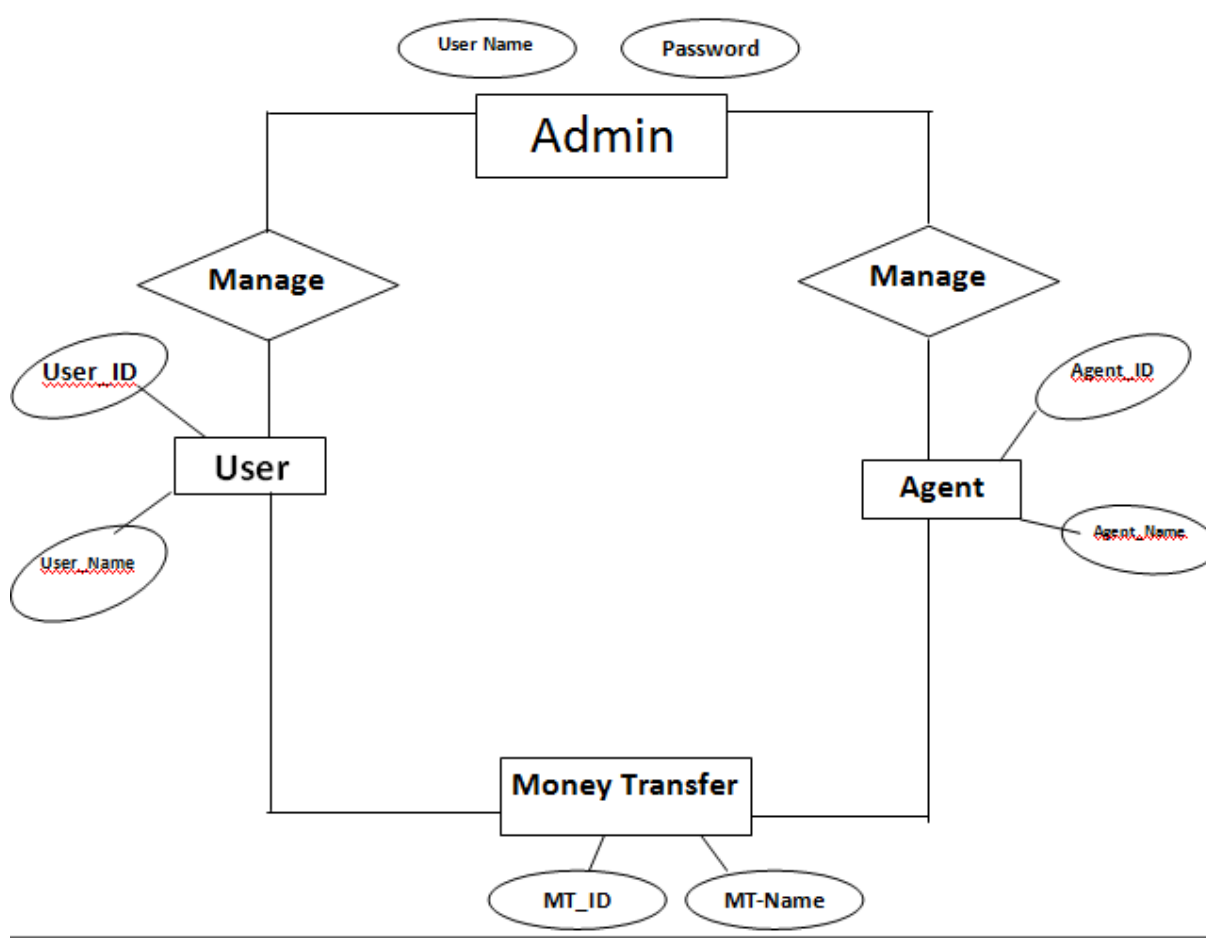
### 5.3.2 Entity Relationship Diagram

ERD is a detailed, logical representation of the entities, associations and data element for an organization or business.

ERD is a graphical modeling tool to standardize ER modeling; the modeling can be carried out with the help of pictorial representation of entities, attributes and relationship.

The basic building blocks of ERD are Entity.

Attributes, Relationship and Connection lines entity is an object that exists and is distinguishable from other object in other words.



**Figure 6:** Overall ERD

## 6. Discussion

This study is useful for the remittance system that exists outside of the conventional banking and finance channels; and it is a system that meant to enable registered user to transfer online funds to other users by using their mobile phone. It has a number of benefits (especially compared to traditional bank transfers). The main benefits of this study includes:

- Platform Independence
- Fund transfers from your home or office
- Convenience
- Airtime purchasing
- Easy payment of bills
- Speed of transaction
- 24 hour availability

## 7. Conclusion

We said that using Money Transfer Systems has reduced administrative cost, increase in efficiency, simplified

bookkeeping, and created more security.

We also exhibit how the customer can pay a bill or transfer money over a matter of minutes over the internet instead of spending money on postage or transportation.

We exhibited that mobile money transfers is significantly to Somalia, due to the fact that it has a strong contribution to economic development and financial through employment creation and financial inclusion. In addition, Mobile Money Transfers are easily accessible in remote areas and easy to use when paying and receiving.

Finally, we established the experiment requirements that include operating system, Android studio, apache server, and PHP and MySQL technologies.

## **8. Recommendation**

We have achieved the final phase development of electronic mobile money transfer and it is like any other system. It needs improvements and maintenance. The future recommendation of the system are include:

- To add chat and video between sender and receiver.
- To extend scope of the project by adding banking service.

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